



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/594,573  | 09/27/2006  | Toshiyuki Matsumura  | 2006_1653A          | 8219             |
| 52349 7590 08/17/2009<br>WENDEROTH, LIND & PONACK L.L.P.<br>1030 15th Street, N.W.<br>Suite 400 East<br>Washington, DC 20005-1503 |             |                      |                     |                  |
| EXAMINER  |             |                      |                     |                  |
| MONIKANG, GEORGE C  |             |                      |                     |                  |
| ART UNIT  |             | PAPER NUMBER         |                     |                  |
| 2614  |             |                      |                     |                  |
| MAIL DATE   |             | DELIVERY MODE        |                     |                  |
| 08/17/2009  |             | PAPER                |                     |                  |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/594,573

**Applicant(s)**

MATSUMURA ET AL.

**Examiner**

GEORGE C. MONIKANG

**Art Unit**

2614

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 May 2009.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 18-34 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 18-34 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☒ Certified copies of the priority documents have been received in Application No. 10/594,573.  
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO/SI/88)  
Paper No(s)/Mail Date \_\_\_\_\_  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Response to Amendment***

1. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 18-29 & 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe, US Patent 6735322 B1, in view of official notice.

Re Claim 18, Watanabe discloses a speaker device comprising: a vibration system member for vibrating to generate sound (fig. 4; col. 7, line 59 through col. 8, line 11); a support system member connected to the housing and for supporting the vibration system member in a manner which allows the vibration system member to vibrate fig. 4; col. 7, line 59 through col. 8, line 11: its inherent that the speaker would have a support system); a first magnetic circuit having a first magnet provided on a surface thereof facing the opening portion (fig. 4; col. 7, line 59 through col. 8, line 11: magnetic circuit 23), and a first yoke provided lateral to the first magnet (fig. 4; col. 7, line 59 through col. 8, line 11: yoke 24); and a second magnetic circuit having a second magnet disposed facing the first magnet via a gap (fig. 4; col. 7, line 59 through col. 8, line 11), and a second yoke provided lateral to the second magnet (fig. 4; col. 7, line 59 through col. 8, line 11: yoke 22), wherein a magnetic gap is formed in at least one of an interval between a side surface of the first magnet and the first yoke in the first magnetic circuit and an interval between a side surface of the second magnet and the second

yoke in the second magnetic circuit (fig. 4; col. 7, line 59 through col. 8, line 11), the vibration system member includes: a first voice coil (fig. 4; col. 7, line 59 through col. 8, line 11: voice coil 29); a first voice coil bobbin provided to dispose the first voice coil in the magnetic gap (fig. 4; col. 7, line 59 through col. 8, line 11: voice coil bobbin 25); and a magnetic member made of a magnetic material other than a magnet (fig. 4; col. 7, line 59 through col. 8, line 11: materials such as the yoke that are typically made of iron), and connected directly or indirectly to the first voice coil bobbin so that the magnetic member is disposed in the gap between the first magnet and the second magnet circuit (fig. 4; col. 7, line 59 through col. 8, line 11), wherein when said vibration system member is displaced from a balanced position, the magnetic member receives a repelling force in a direction which causes the magnetic member to travel away from the balance position by the magnetic field formed by said first and second magnetic circuits (fig. 4; col. 7, line 59 through col. 8, line 11: the magnetic circuits 23 & 40 in fig. 4 repel each other to keep the speaker driver in a balanced position); but fail to explicitly disclose the a housing having an opening. Official notice is taken that both the concepts and advantages of providing a speaker housing are well known in the art. It would have been obvious to provide a speaker housing having opening for the speaker in Watanabe for the purpose of utilizing the speaker in a room.

Re Claim 19, Watanabe discloses the speaker device according to claim 18, wherein the vibration system member further includes a diaphragm at least a portion of which is composed of the magnetic member (fig. 4; col. 7, line 59 through col. 8, line 11), the first voice coil bobbin is fixed to the diaphragm (fig. 4; col. 7, line 59 through col.

8, line 11: voice coil bobbin 25), and the support system member supports the diaphragm in the gap in a manner which allows the diaphragm to vibrate (fig. 4: col. 7, line 59 through col. 8, line 11).

Re Claim 20, Watanabe discloses the speaker device according to claim 18, wherein the second magnetic circuit further includes: a magnetic plate fixed to a surface facing the opening portion of the second magnet (fig. 4: col. 7, line 59 through col. 8, line 11), the second yoke is disposed lateral to the second magnet and the magnetic plate (fig. 4: col. 7, line 59 through col. 8, line 11: second yoke 22), and forms a magnetic gap between the second magnet and a side surface of the magnetic plate (fig. 4: col. 7, line 59 through col. 8, line 11), the vibration system member further includes a diaphragm disposed (fig. 4: col. 7, line 59 through col. 8, line 11), facing a surface facing the opening portion of the housing of the second magnetic circuit (fig. 4: col. 7, line 59 through col. 8, line 11: magnetic circuit 40), the first voice coil bobbin connects the diaphragm and the magnetic member via the magnetic gap formed in the second magnetic circuit (fig. 4: col. 7, line 59 through col. 8, line 11: magnetic circuit 40), and the first voice coil is disposed in the second magnetic gap formed in the second magnetic circuit (fig. 4: col. 7, line 59 through col. 8, line 11).

Re Claim 21, Watanabe discloses the speaker device according to claim 20, wherein the first magnetic circuit further includes a magnetic plate fixed to a surface facing inside of the housing of the first magnet (fig. 4: col. 7, line 59 through col. 8, line 11: magnetic plate 23), the first yoke is disposed lateral to the first magnet and the magnetic plate (fig. 4: col. 7, line 59 through col. 8, line 11: yoke 24), and forms a

magnetic gap between the first magnet and a side surface of the magnet plate (fig. 4; col. 7, line 59 through col. 8, line 11), and the vibration system member further includes: a second voice coil (fig. 4; col. 7, line 59 through col. 8, line 11: voice coil 28); and a second voice coil bobbin fixed to the magnetic member and for disposing the second voice coil in the magnetic gap formed in the first magnetic circuit (fig. 4; col. 7, line 59 through col. 8, line 11).

Re Claim 22, Watanabe discloses the speaker device according to claim 18, wherein the second magnetic circuit further includes: a magnetic plate fixed to a surface facing the opening portion of the second magnet (fig. 4; col. 7, line 59 through col. 8, line 11: magnetic circuit 40), the second yoke is disposed lateral to the second magnet and the magnetic plate (fig. 4; col. 7, line 59 through col. 8, line 11: yoke 22), and forms a magnetic gap between the second magnet and a side surface of the magnetic plate (fig. 4; col. 7, line 59 through col. 8, line 11), the vibration system member further includes: a diaphragm disposed, facing a surface facing the opening portion of the housing of the second magnetic circuit (fig. 4; col. 7, line 59 through col. 8, line 11); and a connection member for connecting the diaphragm and the magnetic member via the magnetic gap formed in the second magnetic circuit (fig. 4; col. 7, line 59 through col. 8, line 11), and the first voice coil bobbin disposes the first voice coil in the second magnetic gap formed in the first magnetic circuit (fig. 4; col. 7, line 59 through col. 8, line 11).

Re Claim 23, Watanabe discloses the speaker device according to claim 18, wherein the first and second magnetic circuits have the same structure (fig. 4; col. 7,

line 59 through col. 8, line 11: magnetic circuits 23 & 40), and the second magnetic circuit and the first magnetic circuit are arranged symmetrically about the magnetic member (fig. 4; col. 7, line 59 through col. 8, line 11: magnetic circuits 23 & 40).

Re Claim 24, Watanabe discloses the speaker device according to claim 23, wherein the vibration system member further includes: a second voice coil (fig. 4; col. 7, line 59 through col. 8, line 11: second voice coil 28); and a second voice coil bobbin connected directly or indirectly to the magnetic member and for disposing the second voice coil in the second magnetic gap formed in the first magnetic circuit (fig. 4; col. 7, line 59 through col. 8, line 11), the first voice coil bobbin disposes the first voice coil in the second magnetic gap formed in the second magnetic circuit (fig. 4; col. 7, line 59 through col. 8, line 11).

Re Claim 25, Watanabe discloses the speaker device according to claim 18, wherein the first magnetic circuit further includes: a magnetic plate fixed to a surface facing inside of the housing of the first magnet (fig. 4; col. 7, line 59 through col. 8, line 11); and a third magnet fixed to a surface facing inside of the housing of the magnetic plate (fig. 4; col. 7, line 59 through col. 8, line 11), and the first yoke is provided to form a magnetic gap between the first yoke and a side surface of the magnetic plate (fig. 4; col. 7, line 59 through col. 8, line 11), and the first magnet and the third magnet are magnetized in directions opposite to each other (fig. 4; col. 7, line 59 through col. 8, line 11), the directions being vibration directions of the vibration system member (fig. 4; col. 7, line 59 through col. 8, line 11).

Claim 26 has been analyzed and rejected according to claim 25.



Re Claim 27, Watanabe discloses the speaker device according to claim 18, wherein the first magnetic circuit further includes: a magnetic plate fixed to a surface facing inside of the housing of the first magnet (fig. 4; col. 7, line 59 through col. 8, line 11), the first yoke is provided to form a magnetic gap between the first yoke and a side surface of the magnetic plate (fig. 4; col. 7, line 59 through col. 8, line 11), and the first magnet is magnetized in a vibration direction of the vibration system member (fig. 4; col. 7, line 59 through col. 8, line 11).

Claim 28 has been analyzed and rejected according to claim 27.

Re Claim 29, Watanabe discloses the speaker device according to claim 18, where the speaker device comprises a plurality of magnetic circuit units each composed of said first and second magnetic circuits (fig. 4; col. 7, line 59 through col. 8, line 11), said vibration system member includes: a same number of the first voice coils as a number of magnetic circuit units (fig. 4; col. 7, line 59 through col. 8, line 11); a same number of the first voice coil bobbins as the number of magnetic circuit units, each first voice coil being disposed in a corresponding second magnetic gap of the corresponding magnetic circuit unit (fig. 4; col. 7, line 59 through col. 8, line 11); and a diaphragm fixed to each first voice coil bobbin and at least a portion of which is composed of a the magnetic member (fig. 4; col. 7, line 59 through col. 8, line 11).

Re Claim 32, Watanabe discloses the speaker device according to claim 18, further comprising: a frame fixed to the support system member, wherein a speaker unit composed of the vibration system member (fig. 4; col. 7, line 59 through col. 8, line 11), the support system member (fig. 4; col. 7, line 59 through col. 8, line 11), the first and

second magnetic circuits (fig. 4; col. 7, line 59 through col. 8, line 11), and the frame (fig. 4; col. 7, line 59 through col. 8, line 11), is attached to the opening portion by the frame being fixed to the opening portion (fig. 4; col. 7, line 59 through col. 8, line 11).

Re Claims 33 & 34, Watanabe discloses the speaker device according to claim 18; but fails to disclose the speaker device disposed in a car body or a video device. Official notice is taken that both the concepts and advantages of providing the speaker device in a car or a housing device are well known in the art. Thus it would have been obvious to use the speaker device in a car or a housing device for the purpose of improving speaker operations in various devices such as automobiles and home theater systems.

1. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe, US Patent 6735322 B1 as applied to claim 18 above, in view of Dijkstra et al, US Patent 4607382. (The Dijkstra reference is cited in IDS filed in 9/27/2006)
2. . Re Claim 30, Watanabe discloses the speaker device according to claim 18, but fails to disclose a position detecting section for detecting a position of the vibration system member (Dijkstra, col. 3, line 49 through col. 4, line 7); and a control section for controlling a vibration of the vibration system member by applying to the first voice coil a signal obtained by adding a direct current component to an acoustic signal based on the position of the vibration system member (Dijkstra, col. 3, lines 49-60: electric power is added to the coil to set it to its zero(balanced) position) detected by the position detecting section so that a center of an amplitude of the magnetic member is at a balanced position of a magnetic field formed in the gap (Dijkstra, col. 3, lines 49-60) as

taught in Dijkstra. It would have been obvious to modify the speaker device of Watanabe with the position detecting and control section of Dijkstra for the purpose of correcting the position of the diaphragm.

1. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe, US Patent 6735322 B1 as applied to claim 18 above, in view of Dijkstra et al, US Patent 4607382, and further in view of Proni, US Patent 6501844 B2. (The Dijkstra reference is cited in IDS filed in 9/27/2006)

Re Claim 31, the combined teachings of Watanabe and Dijkstra disclose the speaker device according to claim 30, but fail to disclose where the position detection section is a gauge (*Proni, col. 5, line 48 through col. 6, line 5*) as taught in Proni. Thus, it would have been obvious to modify the speaker device of Watanabe and Dijkstra with the Proni gauge that controls the voice coil by sensing its position and balancing it after sensing it for the purpose of being able to center the voice coil within the magnetic gap. The combined Watanabe, Dijkstra and Proni fail to explicitly disclose the gauge being a laser displacement gauge. However, official notice is taken that both the concepts and advantages of providing a laser displacement gauge are well known in the art. Thus it would have been obvious to use a laser displacement gauge since they are commonly used to measure the distance an object moves.

**Contact**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **GEORGE C. MONIKANG** whose telephone number is (571)270-1190. The examiner can normally be reached on M-F. alt Fri. Off 7:30am-5:00pm (est).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/George C Monikang/  
Examiner, Art Unit 2614

8/13/2009

/Xu Mei/  
Primary Examiner, Art Unit 2614